

WHAT IS CLAIMED IS:

1. A breast milk expression system comprising:
  - an expression mechanism comprising a plurality of pressurized chambers for stimulating a breast;
  - a flexible breast shield configured to be placed over the breast;
  - a collection cup attaching to the breast shield and adapted to direct the flow of expressed milk from the breast; and
  - a collection container fluidly connected to the collection cup and adapted to collect the expressed milk.
2. A breast milk expression system comprising:
  - an expression mechanism comprising an array of beads positioned along a length of a flexible member for stimulating the breast;
  - a flexible breast shield configured to be placed over the breast;
  - a collection cup attaching to the breast shield and configured to direct the flow of milk expressed from the breast; and
  - a collection container fluidly connected to the collection cup and adapted to collect the expressed milk.
3. A breast milk expression system comprising:
  - an expression mechanism comprising a plurality of helical members for stimulating the breast;
  - a flexible breast shield configured to be placed over the breast;
  - a collection cup attaching to the breast shield adapted to direct the flow of expressed milk; and
  - a collection container fluidly connected to the collection cup and adapted to collect the expressed milk.
4. A breast milk expression system comprising:
  - an expression mechanism comprising a plurality of flexible members, wherein the flexible members are attached to an actuator adapted to cause the flexible members to flex, thereby stimulating a breast;
  - a flexible breast shield configured to be placed over the breast;
  - a collection cup attaching to the breast shield and adapted to direct the flow of expressed milk; and

a collection container fluidly connected to the collection cup and adapted to collect the expressed milk.

5. A method of expressing milk from a breast, comprising:
  - determining that it is necessary to pump breast milk;
  - preparing a breast milk collection unit by;
    - placing a breast shield on at least one breast;
    - sealing said shield to said at least one breast;
    - attaching a milk collection container and a breast-milk expression mechanism to said breast shield;
    - setting at least one user input parameter adapted to control said expression mechanism;
  - pumping said milk through ducting to said collection container;
  - determining that sufficient milk has been pumped;
  - stopping said pumping;
  - removing, sealing and storing said collection container; and
  - removing said expression mechanism.
6. The method of Claim 5, further comprising:
  - cleaning said breast pump system; and
  - storing said breast pump system.